

REMARKS

The Office Action mailed March 30, 2004, has been carefully reviewed and the foregoing amendment and following remarks are made in consequence thereof.

Claims 1-3, 5-9, 11-16, and 18 are now pending in this application. Claims 1-3, 5-9, 11-16, and 18 stand rejected. Claims 4, 10, and 17 have been canceled.

Applicant, preliminarily respectfully disagrees with the assertion in the Office Action, dated March 30, 2004, that there is a conflict between the claimed subject matter and the subject matter described in the specification. Moreover, the Applicant further disagrees with the assertion that Applicant may not amend the specification to conform with the claims because of the alleged conflict. However, as described in In re Benno, 226 USPQ 683 (Fed. Cir. 1985). MPEP 2163.06, the premise that "a claim is part of the disclosure" is principally significant in the situation where a patent application, as filed, contains a claim that specifically discloses something not disclosed in the descriptive part of the specification (claims being technically part of the "specification" 35 U.S.C. 112, second paragraph). In such a case, under the reasoning of In re Benno, the Applicant may amend the specification without being charged with adding "new matter" within the meaning of § 132. Accordingly, Applicant respectfully submits that specification may be amended to conform with the claims as originally submitted without adding new matter.

Furthermore, 37 C.F.R. 1.118 recites, "[a]ll amendments to the specification, including the claims, and the drawings filed after the filing date of the application must conform to at least one of them as it was at the time of the filing of the application." Therefore Applicant respectfully submits that the specification may be amended to conform to the claims as originally submitted without adding new matter and as such, that there is no conflict between the claimed subject matter and the subject matter described in the specification. Specifically, Claim 1, as originally filed, recited a method for assembling a gas turbine engine to prevent rotor over-speeding, wherein the method comprised "coupling a fuel system interface to the gas turbine engine such that the fuel system interface receives electrically and mechanically originated over-speed signals inputted from the engine...." The figures illustrate, and the specification, as originally submitted, describes a fuel system

interface including redundant, independent electrically and mechanically originated over-speed signals. The present specification describes a problem with known fuel system interfaces, at page 1, line, in that they are "non-redundant". Therefore, describing and claiming, in one embodiment of the present invention, a redundant fuel system interface that includes independent electrically and mechanically originated over-speed signals describes a system that overcomes the identified problem. Moreover, the fact that each type of electrically or mechanically originated signal is illustrated in separate figures coupled to an identical fuel system interface does not limit the fuel system interface to only these exemplary embodiments when the claims and specification are not so limiting.

Moreover, Applicant respectfully disagrees with the assertion in the Office Action that the specification only supports an embodiment of the invention wherein there can be only one independent speed sensing system that derives only a mechanically originated or an electrically originated signal. Rather, the Office Action only cites a portion of the sentence and does not take the whole sentence into consideration to determine what the specification teaches. Specifically, the specification as originally submitted recites at page 1, line 27 to page 2, line 2, that "[i]n an exemplary embodiment, a fuel system interface for a gas turbine engine prevents a rotor from over-speeding and receives an over-speed signal from either an electrically or a mechanically originated over-speed sensing system." Typically, as is known in the art, a redundant fuel system interface would only receive a signal from either an electrically or a mechanically originated over-speed sensing system because the first speed sensing system to detect an exceeded a limit, stops the fuel flow to the gas turbine engine such that the turbine speed is reduced before the second of the redundant over-speed sensing system is able to actuate. Similarly, the Office Action states, "fuel flow can only be initiated when the [emphasis added] overspeed signal is removed," as evidence that the Applicant intended only one over-speed sensing system, however, if only one of a plurality of redundant over-speed sensing systems is able to actuate, then fuel flow would only be able to be initiated when the overspeed signal is removed.

Additionally, the Office Action cites, "[t]he interface accommodates overspeed signals that originated from electronic or [emphasis added] mechanically originated signals..." as evidence that Applicant intended embodiments of the present invention only having electrically or mechanical speed sensors. However, the same sentence also describes

"[t]he interface accommodates overspeed signals [emphasis added] that originated from electronic or mechanical speed sensors [emphasis added]..." Applicants respectfully submit that all sentences and the specification, including the claims, and the drawings, should be relied on in assessing the description of the invention as a whole rather than relying only on isolated small portions of a sentence to attempt to show evidence for a particular limited embodiment of the present invention.

The objection to the drawings under 37 C.F.R. 1.83(a) is respectfully traversed. Applicant respectfully submits that every feature of the invention as recited in the claims is clearly illustrated in the Figures. More specifically, and with respect to the structure of Claim 1 for example, Figure 2 illustrates fuel system interface 36 including selector valve 67 receiving an electrically-originated overspeed signal from an independent speed sensing system 40. Figure 4 illustrates the same fuel system interface selector valve 67 receiving a mechanically-originated overspeed signal from an independent speed sensing system 102. Accordingly, as is recited in Claim 1, Applicant submits that a fuel system interface including a shutoff shuttle valve is illustrated receiving electrically-originated overspeed signals (illustrated in Figure 2) and mechanically-originated overspeed signals (illustrated in Figure 4). For the reasons set forth above, Applicant respectfully requests the objection to the drawings be withdrawn.

The objection to the specification is respectfully traversed. With respect to the assertion that there is no basis in the original specification for the material added to the specification at page 2, paragraph 2, Applicant respectfully disagrees and submits that the application as filed, does in fact support the above-referenced specification amendments. For example, the priority logic table illustrated in Figure 3 illustrates a plurality of conditions under which engine fuel flow may be initiated based on the various combinations of signals shown in Figure 3. Specifically, the priority logic table illustrated in Figure 3 illustrates four different operating conditions in which an overspeed signal is sensed. An artisan of ordinary skill in the art, after reading the specification in light of the Figures, would recognize that within the priority logic table, various operating combinations are shown, four of which include a signal indicative of an overspeed condition. As such, Applicant respectfully submits that the amendments to the specification are supported by the specification as originally filed.

Moreover, Applicant respectfully disagrees with the assertion within the Office Action that the specification may not be amended to conform with the Claims as originally filed, without introducing new matter. Rather, Applicant respectfully submits that this assertion appears to contradict established case law and the MPEP. Specifically, as is well established, “the Claims as filed in the original specification are part of the disclosure...the applicant may amend the specification to include the claimed subject matter.” In re Benno, 226 USPQ 683 (Fed. Cir. 1985). MPEP 2163.06. Accordingly, the detailed description portion of the specification has been amended more clearly conform with the subject matter recited in the Claims as originally filed.

Accordingly, for at least the reasons set forth above, Applicant respectfully requests the objection to the specification be withdrawn.

The rejection of Claims 1-3, 5 under 35 U.S.C. § 112, first paragraph, is respectfully traversed. Applicant respectfully submits that the specification as originally filed, does in fact describe a fuel system interface which receives electrically and mechanically originated over-speed signals. Claim 1, as originally filed, recited a method for assembling a gas turbine engine to prevent rotor over-speeding, wherein the method comprised “coupling a fuel system interface to the gas turbine engine such that the fuel system interface receives electrically and mechanically originated over-speed signals inputted from the engine....”

As is well established, “the Claims as filed in the original specification are part of the disclosure...the applicant may amend the specification to include the claimed subject matter.” In re Benno, 226 USPQ 683 (Fed. Cir. 1985). MPEP 2163.06. Accordingly, the detailed description portion of the specification has been amended to more clearly describe that the fuel system interface illustrated in Figure 2 is the same fuel system interface illustrated in Figures 4 and 5, with the only difference being which independent speed sensing system coupled to the fuel system interface is actually illustrated in each specific Figure. Specifically, Figure 2, as originally filed, illustrates fuel system interface 36 including selector valve 67 receiving an electrically-originated overspeed signal from an independent speed sensing system 40, and Figure 4, as originally filed, illustrates the same fuel system interface selector valve 67 receiving a mechanically-originated overspeed signal from an independent speed sensing system 102.

Moreover, Applicant respectfully submits that one of ordinary skill in the art, after reading the specification in light of the Figures, would understand that the same fuel system interface selector valve is illustrated in Figures 2, 4, and 5, and as such, would then understand the fuel system interface and the selector valve operation as recited in the Claims, including the interaction between the selector valve and the electrical and mechanical originated overspeed signals.

Furthermore, Applicant respectfully disagrees with the assertion in the Office Action that one of ordinary skill in the art would not know “what is the purpose of having electrically and mechanically originated over-speed signals, and how the electrical and mechanical speed sensors would operate in conjunction with each other, and how they would interface with the fuel control system.” The Federal Circuit has opined in Verve LLC v. Crane Cams, Inc., 65 USPQ 2d 1051, 1053-1054 (Fed. Cir. 2002), that “[p]atent documents are written for persons familiar with the relevant field; the patentee is not required to include in the specification information readily understood by practitioners, lest every patent be written as a comprehensive tutorial and treatise for the generalist, instead of a concise statement for persons in the field.” In the present case, Applicant respectfully submits that that one skilled in the art would understand the purpose of having electrically and mechanically originated over-speed signals to overcome a shortcoming in the prior art of non-redundant speed sensors. Furthermore Applicant submits that the specification is complete and that one skilled in the art would understand how the fuel system interface receives electrically and mechanically originated over-speed signals because each over-speed sensor couples to the fuel system interface to the same valve. In addition, Applicant also submits that one of ordinary skill in the art would not need to understand how the electrical and mechanical speed sensors would operate in conjunction with each other beyond each sensor being redundant of each other sensor, as the invention is not directed towards the interaction of the electrical and mechanical speed sensors, but rather is directed towards a fuel system interface that receives electrically and mechanically originated over-speed signals from the engine.

Moreover, even if the subject matter of the claim is not shown in the specification or drawings, the claim should not be attacked either by objection or rejection because this

subject matter is lacking in the drawing and description. It is the drawing and description that are defective, not the claim. MPEP 608.01(k).

In addition, Applicant respectfully submits that the Section 112 rejections of Claims 1-3, 5-9, 11-16, and 18 is improper, as no express findings of fact, which support the lack of written description conclusion, have been presented to Applicant in accordance with MPEP 2163.04.

Moreover, Applicant respectfully disagrees with the assertion in the Office Action that the specification, for example, at page 6, line 15, only supports one overspeed signal.

With respect to the assertion that there is no basis in the original specification for the material added to the specification, Applicant respectfully disagrees and submits that the application as filed, does in fact support the above-referenced specification amendments. More specifically, with respect to the changes made to the paragraph beginning on page 2, at line 12, and ending at page 2, at line 21, the application as originally filed does in fact support such limitations.

Furthermore, with respect to the changes made to the paragraphs beginning on page 6, at line 3, and ending at page 6, at line 13, the application as originally filed also supports such limitations. For example, Figure 2 illustrates at least one fuel metering device 50 coupled within a fuel system interface 36 to receive electrically-originated overspeed signals, and Figure 4 illustrates the same fuel metering device 50 coupled within the same fuel system interface 36 to receive mechanically-originated overspeed signals. Accordingly, the amendments to the specification are respectfully submitted to have been supported by the specification as originally filed.

Accordingly, for at least the reasons set forth above, Applicant requests the Section 112, first paragraph, rejections of Claims 1-3, and be withdrawn.

The rejection of Claims 6-9, 11-16, and 18 under 35 U.S.C. § 112, first paragraph, is respectfully traversed. Applicant respectfully submits that the specification as originally filed, does in fact describe a fuel system interface which receives electrically and mechanically originated over-speed signals that Applicant had possession of prior to filing the present application.

Claim 6 recites "[a] fuel system interface for a gas turbine engine including a rotor, said interface coupled to the gas turbine engine to receive electrically originated over-speed signals from the engine, said interface comprising a shutoff shuttle valve for stopping engine fuel flow in response to the over-speed signals received, and based on pre-defined priority selection logic to prevent the rotor from over-speeding, wherein said priority selection logic relates a plurality of different gas turbine engine operating conditions to the overspeed signals, and provides that when said fuel system interface is activated, as a result of receiving an over-speed indication, fuel flow is only initiated when each over-speed signal is removed." Claim 13 recites a gas turbine engine including "a fuel system interface...fuel flow is only initiated when each over-speed signal is removed." The originally submitted specification describes at page 4, lines 13-16, that selector valves 50 prioritize signal selection 66 from three sources for control of shutoff shuttle valve 48," and that, "selector valves 50 receive inputs from an aircraft control shutoff valve 70, speed sensing system 40, and a fuel metering system." Moreover, speed sensing system 40 may include electrically and mechanically originated over-speed signals as described above, such that referring to a plurality of signals that must be removed before fuel flow is initiated is correct and supported in the specification and in Figure 3. Accordingly, Applicants submit that claims 6 and 13 satisfy the requirements of Section 112, first paragraph.

Claims 7-9, 11, and 12 depend from Claim 6, Claims 14-16, and 18 depend from Claim 13 and thereby also satisfy the requirements of Section 112, first paragraph. For at least the reasons set forth above, Applicants respectfully request that the Section 112 rejection of Claims 6-9, 11-16, and 18 be withdrawn.

For at least the reasons set forth above, Applicants respectfully request that the Section 112 rejection of Claims 6-9, 11-16, and 18 be withdrawn.

The rejection of Claims 1-3, 5-9, 11-16, and 18 under 35 U.S.C. § 112, second paragraph is respectfully traversed.

Applicants respectfully submit that Claims 1-3, 5-9, 11-16, and 18 satisfy the requirements of Section 112, second paragraph. More specifically, Claims 1 and 13 have been amended such that the structural relationship between elements recited in the claims satisfy the requirements of Section 112, second paragraph.

Claim 6 recites "[a] fuel system interface for a gas turbine engine including a rotor, said interface coupled to the gas turbine engine to receive electrically originated over-speed signals from the engine, said interface comprising a shutoff shuttle valve for stopping engine fuel flow in response to the over-speed signals received, and based on pre-defined priority selection logic to prevent the rotor from over-speeding, wherein said priority selection logic relates a plurality of different gas turbine engine operating conditions to the overspeed signals, and provides that when said fuel system interface is activated, as a result of receiving an over-speed indication, fuel flow is only initiated when each over-speed signal is removed." Claim 13 recites a gas turbine engine including "a fuel system interface...fuel flow is only initiated when each over-speed signal is removed." The originally submitted specification describes at page 4, lines 13-16, that selector valves 50 prioritize signal selection 66 from three sources for control of shutoff shuttle valve 48," and that, "selector valves 50 receive inputs from an aircraft control shutoff valve 70, speed sensing system 40, and a fuel metering system." Moreover, speed sensing system 40 may include electrically and mechanically originated over-speed signals as described above, such that referring to a plurality of signals that must be removed before fuel flow is initiated is correct and supported in the specification and in Figure 3. Accordingly, Applicants submit that claims, 1, 6, and 13 satisfy the requirements of Section 112, second paragraph.

Claims 1, 2, and 5 depend from Claim 1, Claims 7-9, 11, and 12 depend from Claim 6, Claims 14-16, and 18 depend from Claim 13 and thereby also satisfy the requirements of Section 112, second paragraph. For at least the reasons set forth above, Applicants respectfully request that the Section 112 rejection of Claims 1-3, 5-9, 11-16, and 18 be withdrawn.

In view of the foregoing amendments and remarks, all the claims now active in this application are believed to be in condition for allowance. Reconsideration and favorable action is respectfully solicited

Respectfully Submitted,

A handwritten signature in black ink, appearing to read 'Robert B. Reeser III', written over a horizontal line.

Robert B. Reeser III
Registration No. 45,548
ARMSTRONG TEASDALE LLP
One Metropolitan Square, Suite 2600
St. Louis, Missouri 63102-2740
(314) 621-5070